

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
13 May 2004 (13.05.2004)

PCT

(10) International Publication Number  
**WO 2004/039414 A1**

(51) International Patent Classification<sup>7</sup>: **A61K 49/00**,  
G01N 24/10, 33/50, G01R 33/60

Raft Trustees Ltd., The Leopold Muller Building, Mount  
Vernon Hospital, Northwood, Middlesex HA6 2RN (GB).

(21) International Application Number:  
PCT/GB2003/004637

(74) Agent: **BROWN, David, Leslie**; Haseltine Lake, Imperial  
House, 15-19 Kingsway, London WC2B 6UD (GB).

(22) International Filing Date: 28 October 2003 (28.10.2003)

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,  
CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE,  
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,  
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,  
MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT,  
RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,  
TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0225408.4 31 October 2002 (31.10.2002) GB

(84) Designated States (*regional*): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,  
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,  
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except US*): **RAFT  
TRUSTEES LTD.** [GB/GB]; Leopold Muller Building,  
Mount Vernon Hospital, Northwood, Middlesex HA6 2RN  
(GB).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **HAYWOOD,  
Rachel, Mary** [GB/GB]; c/o Raft Trustees Ltd., The  
Leopold Muller Building, Mount Vernon Hospital, North-  
wood, Middlesex HA6 2RN (GB). **WARDMAN, Peter**  
[GB/GB]; c/o Gray Cancer Institute, Mount Vernon Hos-  
pital, Northwood, Middlesex HA6 2JR (GB). **SANDERS,  
Roy** [GB/GB]; c/o Raft Trustees Ltd., The Leopold  
Muller Building, Mount Vernon Hospital, Northwood,  
Middlesex HA6 2RN (GB). **LINGE, Claire** [GB/GB]; c/o

Published:

- with international search report
- before the expiration of the time limit for amending the  
claims and to be republished in the event of receipt of  
amendments

*For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.*

(54) Title: METHOD AND APPARATUS FOR DETERMINING EFFECTIVENESS OF SUNSCREENS AND OTHER SKIN  
PREPARATIONS IN SHIELDING HUMAN SKIN FROM UVA RADIATION

(57) Abstract: The present invention provides a method and apparatus for measuring the effectiveness of a sunscreen composition  
or other skin preparation in reducing the exposure of human skin to UVA radiation, wherein differential electron spin resonance  
spectroscopy is used to quantify the extent of UVA-induced ascorbate or other measurable radical production in the shielded skin, in  
comparison with reference, preferably unshielded, skin.

WO 2004/039414 A1